



NAVIGATING THE DIGITAL FRONTIER: STUDENTS' PERSPECTIVES ON ARTIFICIAL INTELLIGENCE IN EDUCATION

Dr. V. Kalaiarasi

Assistant Professor, Department of Management Sciences, PSG College of Arts & Science, Coimbatore

ABSTRACT

Artificial intelligence (AI) systems offer effective support for learning and teaching, AI is increasingly being introduced into the classroom through different modalities, with the aim of improving student achievement including personalizing learning for students, automating instructors' routine tasks, and powering adaptive assessments. Thus, the purpose of the research is to analyse, perspective of higher education students about AI components on students learning. To address this need for forward-looking decisions, we used survey method for data collection. The finding revealed that While students appreciate the accessibility, personalization, and interactivity that AI brings, they also emphasize the importance of addressing ethical considerations and maintaining a balance between technological innovation and the preservation of creativity and emotional intelligence in the learning process. The ongoing dialogue between students, educators, and technologists will undoubtedly shape the future of AI in education

1. INTRODUCTION

Artificial Intelligence (AI) has significantly impacted various fields, with education being one of them (Gabriel et al. 2022). Across the globe, AI is providing transformative benefits to educational institutions. The integration of AI tools into education has emerged as a force reshaping the traditional learning landscape. In response to the demands of a rapidly evolving digital era, educational institutions are increasingly turning to AI technologies for innovative solutions to enhance the teaching and learning experience. This article explores the diverse perspectives of students on the incorporation of AI tools in education, examining the opportunities, challenges, and implications of this technological shift.

The rise of AI in education is characterized by the development and deployment of intelligent systems designed to assist educators and personalize learning experiences for students. AI applications, including chatbots, virtual tutors, and adaptive learning platforms, aim to cater to individual learning styles, provide real-time feedback, and create a more engaging educational environment (Kabudi, et al. 2021). As these technologies are adopted more widely in educational institutions, it is crucial to understand how students perceive and interact with AI tools.

Advocates argue that AI tools offer numerous opportunities for enhanced learning experiences. Intelligent tutoring systems, for example, can provide personalized feedback and adapt content delivery based on individual student progress, fostering a dynamic and effective learning environment (Alkhatlan, A., & Kalita, J., 2018). Additionally, AI-powered tools can automate routine tasks, enabling educators to focus more on personalized instruction and mentorship (Srinivasa et al. 2022). The potential benefits of AI in education are substantial, and understanding how students view these tools is essential for

successful implementation.

However, despite the promises of AI in education, challenges and ethical considerations deserve attention. Concerns about data privacy, algorithmic bias, and the potential for over-reliance on technology underscore the need for a careful examination of the ethical implications surrounding AI tools in education (Fernandez, J, 2022). Exploring students' perspectives on these matters can illuminate their concerns and contribute to the development of ethical guidelines for the responsible use of AI in educational settings.

This article aims to provide a comprehensive understanding of students' perspectives on AI tools in education. By examining the opportunities and challenges associated with the integration of AI in learning environments, we seek to contribute to the ongoing discourse on the role of technology in shaping the future of education. Through a synthesis of empirical studies, surveys, and interviews, this article aims to offer insights that inform educators, policymakers, and researchers about the nuanced views of students regarding AI in education.

In the subsequent sections, we will delve into students' perceptions of AI tools, exploring their preferences, concerns, and recommendations for a balanced and effective integration of AI in educational practices. Through this exploration, we aim to foster a deeper understanding of the evolving relationship between students and AI in the realm of education.

2. LITERATURE REVIEW

Artificial Intelligence (AI) represents a branch of computer science that employs algorithms and machine learning techniques to replicate or simulate human intelligence (Helm et al., 2020). The classifications of AI include Narrow AI (Weak AI), General AI (Strong AI), and Superintelligent AI. Generative

AI tools, exemplified by applications such as ChatGPT, can generate human-like text in a conversational style. ChatGPT has found utility in diverse areas such as language translation, human-chatbot interactions, article and story writing, and computer code generation (Debby et al., 2023).

The integration of AI into educational systems is reshaping the approaches to student learning, teaching methodologies, and institutional operations (Firuz et al., 2023). In the realm of education, AI applications operate at both administrative and academic levels. At the administrative level, AI facilitates tasks such as admission processes, counselling, and library services. On the academic front, AI is involved in functions like assessment, feedback, and tutoring (Li and Jeong, 2020). The gradual adoption of AI in education aims to enhance our comprehension of student learning, improve learning performance, and enrich the overall learning experience (Nguyen et al., 2023).

The application of AI in education carries potential advantages, including improved student engagement and the ability to address issues of inequality. However, it also introduces potential drawbacks, such as a reduction in human interaction within classrooms due to the automation processes enabled by AI use cases (Rizvi M., 2023).

3. METHODOLOGY

The research employed a survey method as part of a descriptive research design to gather data. Convenient sampling was utilized to choose a sample of 378 students with varied profiles for participation in the study. The development of questionnaires was informed by insights obtained from previous research. These questionnaires underwent refinement through discussions with experts in English and research. Additionally, a preliminary study involving students was conducted to ensure the accuracy of the survey instruments before their implementation.

4. RESULTS:

4.1 Demography of the respondents

The demographic composition of the surveyed respondents, totally 378 individuals from higher education students, reveals a diverse distribution across various academic disciplines. Among them, 30% are enrolled in engineering programs, 35% pursue studies in the arts, and another 35% specialize in science-related fields.

Gender-wise, the student population demonstrates a fairly balanced representation, with 48% identified as female students and 52% as their male counterparts.

Geographically, the respondents exhibit a noticeable split between urban and rural backgrounds. A majority of 56% hail from urban areas, while the remaining 44% originate from rural settings.

4.2 Awareness of AI in Classroom Teaching-Learning:

Figure 01 represents a substantial 92% of the surveyed students demonstrate a clear understanding of the integration of Artificial Intelligence (AI) tools in classroom instruction and

learning methodologies. This high level of awareness not only signifies a considerable consensus among the student body but also points to a noticeable acknowledgment of the dynamic shifts taking place in the realm of educational technology. The data indicates that students are becoming more cognizant of the transformative influence of AI on conventional teaching and learning approaches, revealing an awareness that goes beyond mere familiarity to signify a profound comprehension of the changing educational landscape.

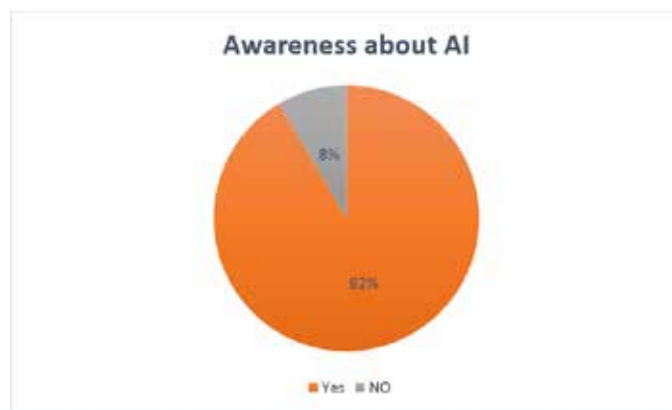


Figure 01: Awareness of AI in Classroom Teaching-Learning

4.3 Acceptance of AI for Personalized Learning:

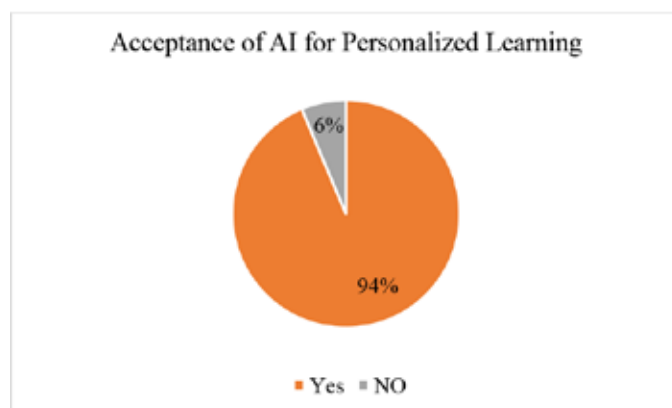


Figure 02: Acceptance of AI for Personalized Learning:

A noteworthy 94% of the respondents express their support for Artificial Intelligence (AI) as a valuable tool for delivering personalized learning experiences. The deployment of AI algorithms, capable of analyzing individual student data, emerges as a crucial mechanism for accommodating various learning styles. This advanced technology not only customizes its approach based on distinct student characteristics but also extends its capabilities to offer personalized feedback and recommendations. The widespread acceptance articulated by the participants emphasizes a shared acknowledgment of AI's capacity to improve education by adapting to individual needs and promoting a more personalized and effective learning experience.

4.4 Emphasis on Unbiased Decisions in AI:

Every student who possesses an understanding of Artificial Intelligence emphasizes the crucial importance of unbiased

decision-making as a primary advantage of AI. The inherent lack of human biases in AI systems has the potential to greatly improve the fairness and objectivity of decision-making processes. Specifically, in situations where AI is involved in grading assessments, its ability to provide evaluations solely based on merit becomes a crucial asset. By avoiding potential biases associated with human subjectivity, AI contributes to a more equitable and impartial evaluation system, thus illustrating one of its key benefits in promoting unbiased decision-making across various domains.

4.5. 24/7 Availability:

Recognition of 24/7 availability emerges as a predominant advantage, as indicated by responses from all surveyed students questioned about the primary benefits of AI. The intrinsic capability of AI to ensure continuous accessibility is a transformative feature, eliminating barriers related to geographical distances, language variations, and financial limitations. This implies that a student located in a different time zone can effortlessly access educational resources and support services whenever required, thereby promoting a more inclusive and flexible learning environment. The acknowledgment of AI's constant availability underscores its pivotal role in shaping an educational landscape that surpasses temporal and logistical constraints, providing students with unprecedented opportunities for learning and support.

4.6 Digital Assistance:

Seventy-four percent of the students expressed a perception of digital assistance as an additional benefit of AI. The capability of AI to provide instant responses to student queries is particularly noteworthy, creating an environment that encourages students to seek clarification without fear of judgment. The incorporation of AI-powered chatbots plays a pivotal role in this context, furnishing students with immediate answers to their questions. This not only expedites the learning process but also nurtures a more interactive and responsive educational experience. The recognition of digital assistance as a positive aspect of AI emphasizes its role in fostering a supportive and learner-centric atmosphere, empowering students to actively engage with the learning material.

4.7 Motivation

A robust 48% of students strongly assert that AI serves as a motivating factor in their learning endeavors. An additional 23% express agreement, while 7% maintain a neutral stance, and 12% and 10% disagree and strongly disagree, respectively. The integration of AI in education introduces elements such as gamification and immersive environments like Virtual Reality (VR) and Augmented Reality (AR). These innovative approaches significantly contribute to heightened student motivation and engagement levels. The inclusion of AI in educational games and virtual simulations introduces interactive and enjoyable elements to the learning process, thereby fostering a positive attitude towards educational activities. The varied responses underscore the diverse impact of AI on student motivation, highlighting its potential to enhance the learning experience through innovative and engaging methodologies.

4.8 No Creativity:

A substantial majority, exceeding 70% of students, assert that the integration of AI tools diminishes creativity within the student community. The prevailing sentiment is that dependence on AI often fosters a tendency to seek ready-made solutions, thereby limiting the inclination to think innovatively and "outside the box." The consensus among students indicates a concern that the convenience offered by AI may inadvertently impede the development of creative thinking skills by promoting an expectation for pre-existing solutions instead of cultivating an environment that encourages original thought and innovative problem-solving approaches.

4.9 Make Humans Lazy

A significant majority, surpassing 90% of students, recognize that AI plays a crucial role in automating a substantial portion of mundane and repetitive tasks. The prevailing sentiment is that the convenience of AI reduces the necessity for humans to partake in activities such as memorization, puzzle-solving, or acquiring in-depth knowledge to meet academic requirements, particularly in tasks like assignments. Consequently, there is a growing concern that this reliance on AI could result in a decrease in cognitive engagement, as individuals may find themselves utilizing their brains less frequently. This dependence on AI has the potential to pose challenges in the learning process for the student community, as it might contribute to a diminishing emphasis on active mental involvement and critical thinking.

4.10 No Ethics:

A unanimous consensus among students indicates a widespread acknowledgment that the utilization of AI tools for assignments and projects lacks ethical considerations. The prevailing sentiment is that the absence of ethical guidelines could, over time, jeopardize the integrity of the entire student community's knowledge acquisition process. The concern centers around the potential consequences of employing AI without a principled framework, posing a threat to the authenticity and ethical standards upheld in academic pursuits. The collective perspective underscores the necessity for a conscientious approach to the integration of AI in educational tasks to safeguard the ethical foundations of knowledge acquisition among students.

4.11 Emotionless:

A substantial majority, surpassing 92% of students, strongly voice their disagreement concerning the emotional significance of AI, particularly in the context of teamwork. The prevailing sentiment is that AI lacks the capability to infuse emotional intelligence into collaborative efforts. The resounding consensus among students highlights a skepticism about AI's ability to comprehend and respond to human emotions effectively, especially in dynamic scenarios such as teamwork. This collective perspective underscores the perceived emotional limitations of AI and indicates that, according to students, there is a distinct need for human emotional understanding in collaborative endeavors.

5. CONCLUSION:

In conclusion, the ever-evolving landscape of education in the

digital era finds students at the forefront, assuming pivotal roles in shaping the narrative surrounding the integration of Artificial Intelligence (AI). Their perspectives emerge as invaluable guides, offering nuanced insights into the dynamic relationship unfolding between students and AI within the educational realm. Acknowledging the multifaceted impact of AI, students express gratitude for its contributions, citing benefits such as improved accessibility, personalized learning experiences, and heightened interactivity.

Nevertheless, within this positive reception, students underscore the pressing need to address ethical considerations accompanying the integration of AI in education. Their advocacy extends toward a thoughtful approach that not only harnesses the advantages of technological innovation but also safeguards essential elements like creativity and emotional intelligence in the learning process. The emphasis on ethical considerations reflects a collective awareness of the necessity to navigate the evolving educational landscape responsibly, ensuring that the adoption of AI aligns with ethical principles. Moreover, students convey a desire for a balanced coexistence between technological advancements and the preservation of human-centric attributes that contribute to a holistic learning experience. They stress the importance of maintaining equilibrium, envisioning AI enhancing educational practices without overshadowing intrinsic aspects such as creativity and emotional intelligence.

The ongoing and collaborative dialogue among students, educators, and technologists acts as a catalyst for refining the integration of AI in education. This discourse proves essential for addressing evolving concerns, exploring innovative applications, and establishing ethical guidelines that promote responsible implementation. Students' perspectives play a pivotal role in shaping the trajectory of AI in education, providing a solid foundation for informed decision-making and fostering an educational environment that is both technologically advanced and deeply human-centered.

As the symbiotic relationship between students and AI continues to evolve, it is poised to influence the future of education, responding adeptly to the evolving needs of learners in the digital age. This dynamic interplay between technology and human insight promises to define a future educational landscape that is adaptive, inclusive, and responsive to the multifaceted demands of 21st-century learners.

REFERENCE

1. Alkhatlan, A., & Kalita, J. (2018). Intelligent tutoring systems: A comprehensive historical survey with recent developments. arXiv preprint arXiv:1812.09628.
2. Cotton, D. R., Cotton, P. A., & Shipway, J. R. (2023). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, 1-12.
3. Fernández Fernández, J. L. (2022). Ethical considerations regarding biases in algorithms.
4. Gabriel, Florence, Rebecca Marrone, Ysabella Van Seville, Vitomir Kovanovic, and Maarten de Laat. 2022. Digital education strategies around the world: Practices and policies. *Irish Educational Studies* 41: 85–106.
5. Helm, J. M., Swiergosz, A. M., Haeberle, H. S., Karnuta, J. M., Schaffer, J. L., Krebs, V. E., ... & Ramkumar, P. N. (2020). Machine learning and artificial intelligence: definitions, applications, and future directions. *Current reviews in musculoskeletal medicine*, 13, 69-76.
6. Kabudi, T., Pappas, I., & Olsen, D. H. (2021). AI-enabled adaptive learning systems: A systematic mapping of the literature. *Computers and Education: Artificial Intelligence*, 2, 100017..
7. Kamalov, F., Santandreu Calonge, D., & Gurrib, I. (2023). New era of Artificial intelligence in education: Towards a sustainable multifaceted revolution. *Sustainability*, 15(16), 12451.
8. Li, P., & Jeong, H. (2020). The social brain of language: grounding second language learning in social interaction. *npj Science of Learning*, 5(1), 8.
9. Nguyen, A., Ngo, H. N., Hong, Y., Dang, B., & Nguyen, B. P. T. (2023). Ethical principles for artificial intelligence in education. *Education and Information Technologies*, 28(4), 4221-4241.
10. Rizvi, M. (2023, June). Exploring the landscape of artificial intelligence in education: Challenges and opportunities. In *2023 5th International Congress on Human-Computer Interaction, Optimization and Robotic Applications (HORA)* (pp. 01-03). IEEE.
11. Srinivasa, K. G., Kurni, M., & Saritha, K. (2022). Harnessing the Power of AI to Education. In *Learning, Teaching, and Assessment Methods for Contemporary Learners: Pedagogy for the Digital Generation* (pp. 311-342). Singapore: Springer Nature Singapore..